

## EXECUTIVE SUMMARY

### **LEGAL & REGULATORY FRAMEWORK**

The Maharashtra State Electricity Distribution Company Limited (MSEDCL or Maha Vitaran) is submitting this Annual Revenue Requirement (ARR) & Tariff Petition for FY 2006-07, on the basis of the provisional Transfer Scheme, in accordance with Sections 61, 62 and 64 of the Electricity Act 2003 (EA 2003) and as per the MERC (Terms and Conditions of Tariff) Regulations, 2005, based on the actual expenditure and revenue of FY 2004-05, actual expenditure till September 2005 and estimates from October onwards for FY 2005-06, and projections for FY 2006-07.

Section 61 of the EA 2003 stipulates

*“The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-*

- (a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;*
- (b) the generation, transmission, distribution and supply of electricity are conducted on commercial principles;*
- (c) the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;*
- (d) safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;*
- (e) the principles rewarding efficiency in performance;*
- (f) multi year tariff principles;*
- (g) that the tariff progressively reflects the cost of supply of electricity and also, reduces and eliminates cross-subsidies within the period to be specified by the Appropriate Commission;*
- (h) the promotion of co-generation and generation of electricity from renewable sources of energy;*
- (i) the National Electricity Policy and tariff policy”*

### **BACKGROUND**

The provisional Transfer Scheme has been notified under 131 (5) (g) of the EA 2003 on 6<sup>th</sup> June 2005, which has resulted in the creation of 4 successor Companies of the erstwhile MSEB, including MSEDCL. The Maharashtra State Electricity Distribution Company Limited (MSEDCL or Maha Vitaran) is a Company formed under the

Government of Maharashtra General Resolution No. ELA-1003/P.K.8588/Bhag-2/Urja-5 Dated January 24, 2005 with effect from 6<sup>th</sup> June 2005 according to the provisions envisaged in the Electricity Act 2003. The MSEDCL has been registered with the Registrar of Companies, Mumbai on 31<sup>st</sup> May 2005 bearing certificate U40109 MH 2005 PLC 153645 under the Companies Act, 1956.

The main functions of MSEDCL as outlined in the provisional Transfer Scheme are as follows-

- a) To acquire, establish, construct, take over, erect, lay, operate, run, manage, hire, lease, buy, sell, maintain, enlarge, alter, renovate, modernize, work and use projects associated lines and all things connected thereto for the purpose of distribution of power including sub-station, civil works distribution centres, cables, wires, lines, accumulators, plant, motors, meters, apparatus, materials and things, connected with the production, generation, use, storage, measurement; and distribution lines (LT and HT 11/22/33 kV) connected therewith.
- b) To carry on the business of purchasing, importing, exporting, trading or otherwise dealing in Electric Power and to coordinate, aid and advise on the activities of other companies and concerns including subsidiaries, associates, affiliates engaged in the generation, distribution or trading of power on all matters concerning the operation and maintenance of Electric sub-stations, associated lines (LT and HT 11/22/33 kV) and in the use, storage and measurement, distribution and supply of electric power.
- c) To acquire, establish, construct, take over, erect, lay, operate, run, manage, hire, lease, buy, sell, maintain, enlarge, alter, renovate, modernize, work and use electrical distribution lines and/or net work through, high voltage (11/22/33 kV) and low voltage line and associated sub-stations, including distribution centres, cables, wires, accumulators plants, motors, meters, apparatus, computers and materials connected with distribution, ancillary services, supply of electrical energy, SCADA and AMR systems, telecommunication and telemetering equipment in the State of Maharashtra and elsewhere. To undertake, for and on behalf of others the erection, operation, maintenance, management of high voltage (11/22/33 kV) and low voltage lines and associated substations, equipment, apparatus, cables, wires.

All the Assets, Liabilities and proceedings, belonging to the Board, concerning the distribution of electricity in the area of supply consisting of O & M Zones of Amravati, Aurangabad, Beed-latur, Bhandup, Kalyan, Konkan, Kolhapur, Nagpur,

Nagpur (Urban), Nashik and Pune in the State of Maharashtra have been transferred from the erstwhile MSEB to MSEDCL.

### **MSEDCL's PROJECTED SALES**

MSEDCL has projected the category-wise sales for the metered categories on the basis of the past trends in sales, using 5-year or 3-year Compounded Annual Growth Rate (CAGR) as appropriate, and after considering the assessed impact of the severe load shedding being presently undertaken by MSEDCL in the State.

In LT category, the incidence of load shedding is higher, which has had an impact on the sales to the LT categories. Hence, in the projections, MSEDCL has not used 5 yr CAGR for all categories, and has used its best judgement to project the category-wise sales for FY 2005-06 and FY 2006-07. In FY 2006-07, due to the addition of generation capacity in the form of RGPPL, Paras and Parli stations, the quantum of energy available for sale is expected to increase significantly in FY 2006-07 over FY 2005-06 levels. Accordingly, MSEDCL has assumed that the growth in sales to LT categories will be higher than the CAGR of sales exhibited in recent years, as the suppressed demand due to load shedding can be serviced.

The sales to un-metered categories (a portion of LT agricultural category) has been projected on the basis of the agricultural consumption norm derived on the basis of the energy audit data and appropriate filters. Currently, the load shedding in agriculture-dominated areas is around 12 hours. The agriculture load has shifted to a large extent, and the consumption norm is expected to increase significantly in FY 2006-07, as the suppressed demand will be met through the additional energy availability. Accordingly, MSEDCL has assumed that the consumption norm of LT un-metered agricultural category will increase from 1602 hours/HP/annum in FY 2004-05 to 1762 hours/HP/annum and around 2290 hours/HP/annum in FY 2005-06 and FY 2006-07, respectively.

It may be noted that once all the additional power planned for FY 2006-07 comes on line, MSEDCL will still have a shortfall in terms of MW and may have to undertake load shedding during peak hours, though at lower levels. However, in energy (MU) terms, MSEDCL expects to be comfortably placed and hence expects the category-wise sales to increase

The total sales projections have been summarised in the Table below:

(MU)

Sl.	Consumer Category & Consumption Slab	Previous Year (FY 2004-05)	Growth over previous year	Current Year (FY 2005-06)	Growth over previous year	Ensuing Year (FY 2006-07)
		(Actual)	(%)	(Estimates)	(%)	(Forecast)
A	TOTAL HT Category	18973.84	3.9%	19708.02	8.8%	21432.79
B	TOTAL LT CATEGORY	23974.56	9.5%	26247.92	21.2%	31820.98
C	Total MSEDCL	42948.41	7.0%	45955.94	15.9%	53253.77

### MSEDCL's DISTRIBUTION LOSSES

MSEDCL has continued with the same methodology stipulated by the Hon'ble Commission in its Tariff Order for FY 2001-02 for division-wise energy accounting, and all the division level feeders have been considered for the purpose of analysis of circle-wise distribution losses. MSEDCL has analysed the month-wise energy accounting data for FY 2004-05. The distribution loss has been calculated as the difference between the energy input and energy billed for zone/circle. Energy billed is calculated as sum of metered sales and unmetered sales. Unmetered sale is calculated by using zonal consumption norm and actual connected load of circle, as directed by the Hon'ble Commission. For FY 2004-05, energy input was 63284.56 MU, while metered and un-metered sales were 34313.72 MU and 8629.97 MU, respectively, and distribution loss was 31.00%.

### Trajectory of Distribution Loss Reduction

The above distribution loss has been considered as the system loss for FY 2004-05, and an annual reduction of 2% has been considered for FY 2005-06 and FY 2006-07, to project the energy input requirement. The distribution loss reduction has not been projected on a circle-wise basis. The targeted long-term reduction in circle-wise distribution losses has been formulated in view of the investments being planned for each circle, as submitted in the Investment Plan presented to the Commission. The summary of circle-wise target for loss reduction for FY 2006-07 is as follows:

For Circles with above 40% - 3% reduction in every year Distribution losses
For Circles having losses between 30% to 40% - 3% reduction in every year for three years and 1.5% in next two years
For Circles having losses between 25% to 30% - 3% in first two years and 1% in next three years
For Circles having losses between 20% to 25% - 1.5% in first two years and 1% in next three years

However, the Commission will appreciate that as the investments will be made during the year, the benefits of the investment will only be partly visible during the year itself, and hence, it is difficult to co-relate the circle-wise investment plan with the distribution loss reduction projected for FY 2006-07.

### **MSEDCL's ENERGY BALANCE**

The total energy input requirement is the summation of the projected sales and the distribution loss, as shown in the Table below:

(MU)

<b>Energy Balance</b>	<b>FY05</b>	<b>FY06</b>	<b>FY07</b>
Power Purchase from Maha GENCO	47131	46459	47798
Power Purchase from Other Sources	20043	23272	30654
<b>Energy Input Available</b>	<b>67174</b>	<b>69731</b>	<b>78453</b>
Metered Sales	34346	36457	40905
Assessed Un-metered Sales	8636	9499	12349
Credit Billing (on a/c of TPS by RE sources)	581	581	581
<b>Total Sales</b>	<b>43562</b>	<b>46537</b>	<b>53834</b>
<b>Distribution loss Reduction</b>		<b>2.0%</b>	<b>2.0%</b>
DISCOM's Distribution Losses	31.00%	29.00%	27.00%
TRANSCO's transmission losses	6.01%	6.00%	6.00%
<b>DISCOM's energy requirement</b>	<b>63136</b>	<b>65547</b>	<b>73749</b>
TRANSCO's energy requirement	67174	69731	78456

The power purchase quantum has been derived by adding MSETCL's transmission losses to MSEDCL's energy requirement, as shown in the Table above.

### **MSEDCL's AGGREGATE REVENUE REQUIREMENT**

MSEDCL has provided separate data on un-audited expenses for the period from April 1, 2005 to June 5, 2005, and for the period from June 6, 2005 to September 30, 2005, as prior to June 5, 2005, the erstwhile MSEB was the existing Utility, and the expenses of Maha Vitaran have been apportioned from the total expenses of MSEB. The expenditure for FY 2005-06 has been estimated on the past trends in the overall expenditure. Projections for FY 2006-07 have been made on the basis of past trends and expenditure allocated to Maha Vitaran.

- a) MSEDCL, while estimating its power purchase costs for power purchased from MSPGCL, has considered the total energy availability and the total costs based on the Petition filed by MSPGCL.

- b) MSEDCL has projected the purchase of power from CGS Stations based on the share of MSEDCL in the GGS Stations, as per the latest allocation. The cost of power purchase in FY 2005-06 has been projected based on the prevailing costs, while a 4% increase in basic fuel prices has been assumed for projecting the fuel costs for FY 2006-07.
- c) MSEDCL has projected total power purchase of 78453 MU, from above sources and sources such as Ratnagiri Gas & Power Private Limited (RGPPL), traders, & renewable sources, at a total estimated cost of Rs. 17359 crore. In case gas is not available for any reason, then the additional cost of power purchase due to naphtha based generation by RGPPL, would amount to Rs. 868 crore.
- d) The employee expenses have been projected after considering the impact of the wage revision, normal increase in DA expenses, and a nominal increase of 4% in basic salary and other allowances.
- e) A&G expenses have been projected to increase at a nominal rate of 5%
- f) R&M expenses have been projected at 3.5% of the opening GFA
- g) Depreciation has been projected on the opening GFA at an average rate of 6.05%, which is lower than the depreciation rate of 6.3% approved by the Hon'ble Commission for the erstwhile MSEB.
- h) Interest on long-term loans has been projected on the outstanding loans allocated to MSEDCL as per the provisional Transfer Scheme, after considering the additional loans, and repayment schedule. The outstanding loans in FY 2004-05, include certain Government of Maharashtra (GoM) loans, which have been serviced by the erstwhile MSEB. However, as per the provisional Transfer Scheme, these GoM loans have not been allocated to the Successor Companies including MSEDCL, and have been retained with the residual MSEB Holding Company. Accordingly, the interest expenditure against these loans has not been considered under MSEDCL, while projecting the interest expenditure for FY 2005-06 and FY 2006-07.
- i) It may be noted that the existing Transfer Scheme is provisional. If, under any circumstances, the liability of servicing these GoM loans are allocated to the MSEDCL under the provisions of the Final Transfer Scheme, then the MSEDCL reserves the right to approach the Hon'ble Commission for recovering the cost of the same through appropriate tariff measures, at that point in time.
- j) The average interest has been reduced from around 13.4% in FY 2001-02, to around 11% in FY 2004-05, and is expected to reduce further to around 8.3% in FY 2005-06 and FY 2006-07.
- k) The capital expenditure projected in FY 2005-06 and FY 2006-07 is Rs. 1142.7 crore and Rs. 2829.7 crore, respectively. The capital expenditure has been assumed to

be undertaken at a normative debt:equity ratio of 70:30, which is in accordance with the MERC (Terms and Conditions of Tariff) Regulations, 2005, notified in August 2005.

- l) The total interest expenditure is projected to reduce from Rs. 472.7 crore in FY 2004-05 to Rs. 441.6 crore in FY 2005-06, and increase to Rs. 627.04 crore in FY 2006-07
- m) MSEDCL has made provisions for bad debts at rate of 1.5% of billings for FY 2005-06 and FY 2006-07, which works out to Rs. 220 crore and Rs. 238 crore in FY 2005-06 and FY 2006-07, respectively.
- n) The other expenses for MSEDCL comprising the expenditure on account of tax on sale of electricity and interest payable to suppliers, service fee and miscellaneous expenses, are estimated to reduce from Rs. 130.2 crore in FY 2004-05 to Rs. 122.3 crore in FY 2005-06, and increase to Rs. 137.4 crore in FY 2006-07.
- o) The income tax liability of MSEDCL in FY 2005-06 and FY 2006-07 has been projected by applying the current effective income tax rate of 33.66% (30% tax, 10% surcharge, and 2% cess thereon) on the projected RoE.
- p) For the purposes of this ARR Petition, MSEDCL has assumed that the entire ARR of the MSETCL, which is the notified STU, would be recovered through MSEDCL's ARR.
- q) MSEDCL has projected the contribution to contingency reserves at 0.5% of opening GFA.
- r) For FY 2004-05 and FY 2005-06, MSEDCL has projected return on the basis of 4.5% of its Net Fixed Assets. For FY 2006-07, MSEDCL has projected proportionate return on equity (RoE) at the rate of 16% on the opening equity at the beginning of the year.

The Aggregate Revenue Requirement of MSEDCL is the summation of the above fixed costs and the RoE, as discussed in detail in Sections 3, and as summarised in the Table below:

(Rs. Crore)

Sl.	Particulars	Previous Year	Current Year	Ensuing Year
		(FY 2004-05)	(FY 2005-06)	(FY 2006-07)
		(Unaudited)	(Estimated)	(Forecast)
1	Power Purchase Expenses	10706.9	12790.4	17358.9
2	Operation & Maintenance Expenses	1747.6	1865.5	2045.7
2.1	Employee Expenses	1360.5	1456.4	1564.6
2.2	Administration & General Expenses	121.0	127.0	133.4
2.3	Repair & Maintenance Expenses	266.1	282.1	347.7
3	Depreciation, including advance against depreciation	511.4	540.7	599.2
4	Interest on Long-term Loan Capital	349.0	180.9	278.7
5	Other Interest & Finance Charges incl. Interest on working capital & consumer security deposits	123.7	260.7	348.4
6	Bad Debts Written off	209.9	219.9	238.1
7	Other Expenses (details given separately)	130.2	122.7	137.4
8	Income Tax	0.0	108.5	160.9
9	Transmission Charges paid to Transmission Licensee	1589.6	1668.4	1854.4
10	Contribution to contingency reserves		44.8	49.7
<b>11</b>	<b>Total Revenue Expenditure</b>	<b>15368.3</b>	<b>17802.5</b>	<b>23071.3</b>
12	Return on Equity Capital	122.5	129.0	478.0
<b>13</b>	<b>Aggregate Revenue Requirement</b>	<b>15490.8</b>	<b>17931.5</b>	<b>23549.3</b>
14	Less: Non Tariff Income	985.9	1021.8	1059.4
<b>15</b>	<b>Aggregate Revenue Requirement from Retail Tariff</b>	<b>14504.9</b>	<b>16909.8</b>	<b>22489.9</b>

Thus, the Aggregate Revenue Requirement of MSEDCL is projected to increase from Rs. 14505 crore in FY 2004-05, to Rs. 16910 crore in FY 2005-06 and Rs. 22490 crore in FY 2006-07.

#### **REVENUE GAP WITH EXISTING TARIFF**

The projected revenue and corresponding revenue gap with the existing tariff have been summarised in the Table below:

(Rs. Crore)

Sl.	Particulars	Previous Year	Current Year	Ensuing Year
		(FY 2004-05)	(FY 2005-06)	(FY 2006-07)
		(Unaudited)	(Estimated)	(Forecast)
	<b>Aggregate Revenue Requirement from</b>			
<b>1</b>	<b>Retail Tariff</b>	<b>14504.9</b>	<b>16909.8</b>	<b>22489.9</b>
2	Revenue with existing tariff	13991.8	15508.6	18942.2
<b>3</b>	<b>Revenue Gap</b>	<b>513.1</b>	<b>1401.2</b>	<b>3547.8</b>

The total revenue gap over the three years, is Rs. 5462 crore, including the truing up requirement of FY 2004-05 and FY 2005-06. This is in accordance with the principle of 'truing up' instituted by the Commission in its Tariff Orders for TPC and REL in FY 2004-05. As the tariffs have not been revised for over two and a half years, the revenue gap in FY 2004-05 and FY 2005-06 have to be also recovered from the tariff revision to be undertaken in FY 2006-07.

### LOAD SHEDDING VS POWER PURCHASE COST

The load shedding in MW and MU, total power purchase cost in Rs. Crore and average power purchase cost in Rs/kWh for FY 05 (actual), FY 06 (actual) and FY07 (proposed) is given in the following Table. The increase in the demand - supply gap is the primary reason for the increase in load shedding, which has necessitated higher incidence of costly power purchase.

Sl.	Particulars	FY05	FY06	FY07
1	Peak Demand (MW)	12749	14061	14600
2	Availability (At the time of Peak Demand ) (MW)	9704	9856	10100
3	Load shedding (At the time of Peak Demand ) (MW)	3045	4205	4500
4	Load shedding (At the time of Peak Demand ) (MU)	38.85	66.5	70.43
5	Total power purchase cost (Rs. Cr)	10706.9	12790.4	17358.9
7	Average power purchase cost (Rs/kWh)	1.59	1.83	2.21

The Commission has stipulated the load shedding protocol, wherein the divisions are categorized as urban and industrial agglomerations, agricultural dominated regions, and other regions, and classified as A, B, C or D group, depending on the distribution and collection loss in the division. The hours of load shedding has been

stipulated with defined ceiling levels of load shedding for the demand-supply gap level of 4500 MW. The maximum load shedding is for D category agricultural dominated region, at 12 hours daily, while the least load shedding is for A category urban and industrial agglomerations, at 2.5 hours.

If the Load Shedding Protocol is maintained, and all the power available is purchased (including power available at rates above Rs. 4 per kWh), then the load shedding for D category agricultural dominated region is expected to range between 8 hours (January 2007) to 12 hours (December 2006), while the load shedding for the A category urban and industrial agglomerations is expected to range between 1.5 to 2.5 hours. However, hypothetically, in case costly power (above Rs. 4/kWh) is not purchased, then the load shedding for D category agricultural dominated region is expected to range between 13.5 hours (October 2006) to 16.5 hours (December 2006), while the load shedding for the A category urban and industrial agglomerations is expected to range between 4 to 7 hours.

If the load shedding is done equally for all regions and groupings, irrespective of categorization and classification, and all the power available is purchased (including power available at rates above Rs. 4 per kWh), then the average level of load shedding in the peak demand months of October 2006 to March 2007 is estimated to range from 5 hours (in January 2007) to 8 hours (in December 2006). However, hypothetically, in case costly power (above Rs. 4/kWh) is not purchased, then the average load shedding in the peak demand months of October 2006 to March 2007 is estimated to increase to around 9.5 hours (in October 2006) to 12.25 hours (in December 2006). As a thumb rule, it has been found that every 300 to 320 MW of additional purchase on 'round the clock' basis, enables reduction in load shedding by 1 hour daily across all categories and groups.

Thus, increase in power purchase quantum enables MSEDCL to mitigate against load shedding to some extent. However, the tariff will also increase correspondingly, as the cost of power purchase has to be recovered from the consumers. Consumers may need to consider this aspect.

Recently, an innovative approach to the above problem has been successfully implemented in Pune urban circles, where the industrial units having captive facilities are utilising the surplus captive power available during peak hours, resulting in withdrawal of consumption from the grid. The surplus grid power is utilized to eliminate load shedding in the region. The difference in the tariff payable by the industrial units having captive facilities and the actual cost of captive

generation is compensated to the captive units; the amount is collected by payment of additional 'Reliability Charges' of around 42 paise/kWh by all consumers for their consumption during the month (except domestic consumers consuming less than 300 units per month).

### **NEED FOR TARIFF INCREASE**

The revenue gap shown above has to be recovered through increase in the retail tariffs for MSEDCL's consumers. The tariffs have not been revised since December 2003, when the Commission issued the previous Tariff Order for the erstwhile MSEB for FY 2003-04. Thus, the existing tariffs have been in existence since December 2003, which is around 2.5 years.

The Fuel and Other Cost Adjustment (FOCA)/Fuel Cost Adjustment (FCA) formula helped MSEB/MSEDCL to recover most of the increase in fuel costs over this period. However, fixed costs have also gone up significantly over this period, which is clearly brought out by the fact that the average cost of supply (ACOS) has increased from Rs. 3.07 per kWh (computed based on ARR, less the non-tariff income, and the total sales approved by the Commission in the Tariff Order for FY 2003-04) to Rs. 4.22 per kWh.

Unless tariff is increased, the viability of MSEDCL will be adversely affected. The Commission and MSEDCL's consumers will appreciate that MSEDCL has to be financially viable, in order to procure more electricity, to reduce the load shedding in the State.

The average increase in tariff required over existing levels to recover the entire revenue gap works out to 28.8%. It should be noted the increase in tariff on an annualised basis works out to around 10%, as the tariffs have not been revised for around 2.5 years.

### **REGULATORY LIABILITY CHARGES**

The Commission, in its Tariff Order for FY 2003-04, had introduced Regulatory Liability Charges at the rate of 50 paise per unit for the subsidizing categories, viz. LT commercial, LTPG, HTP I, HTP II and Railways, for funding the cost of excess T&D losses, which was to be returned to these consumer categories in future through reduction in tariffs, when the T&D losses are reduced. The revenue earned through levy of RLC over the period from December 2003 till March 2006 has been given in the Table below:

<b>Year</b>	<b>RLC Billed (Rs. Crore)</b>
FY 2003-04	313.1
FY 2004-05	1054.4
FY 2005-06	1163.8
<b>TOTAL</b>	<b>2531.3</b>

MSEDCL accepts that the revenue earned from RLC has to be refunded to the consumers, at some point in time in the future. However, MSEDCL has faced a revenue gap in FY 2004-05 and FY 2005-06, despite earning revenue from RLC. If the revenue from RLC is refunded, the revenue gap will increase correspondingly, which will have to be recovered from all consumers. Further, though distribution losses have been reduced in FY 2005-06 as compared to the loss levels in FY 2004-05, revenue from RLC can be returned only out of savings due to higher loss reduction as compared to target loss reduction. Since, the loss levels are still above the target loss levels stipulated by the Commission, it is not possible to refund the revenue earned from RLC at this stage.

#### **SUBSIDY FROM STATE GOVERNMENT**

MSEDCL has not considered any subsidy receivable from the Government of Maharashtra, in its Tariff Petition, since MSEDCL has not received any subsidy as on date.

#### **FOCA/FCA APPROVED AND BILLED**

The Commission had approved the Formula for recovery of Fuel & Other Cost Adjustment (FOCA) charges, which was subsequently modified to recovery of Fuel Cost Adjustment (FCA) charges with effect from September 2005. Erstwhile MSEB and subsequently MSEDCL have been recovering the variation in fuel costs and power purchase costs through this automatic pass through mechanism, since the issue of the last Tariff Order for FY 2003-04. The FOCA/FCA approved and billed in FY05 and FY06 has been given in the Table below:

(Rs. Crore)

<b>Month</b>	<b>Recoverable FOCA as per Comm.</b>	<b>Under/(Over) Recovery as per Commission</b>
FY05	861.07	77.07
FY06	2181.48	440.35

## PROPOSED TARIFF PHILOSOPHY

### 1.1 Cross-subsidy reduction

Since the first Tariff Order for the erstwhile MSEB in May 2000, the Commission has been reducing the cross-subsidy between the subsidising and subsidised consumer categories. Till date, the Commission has issued three Tariff Orders for the erstwhile MSEB, and the cross-subsidy has been reduced further in each Tariff Order. MSEDCL is of the view that as compared to other States, the trajectory of cross-subsidy reduction in Maharashtra has been too steep, i.e., the differential between tariff of subsidising categories and tariff for subsidised categories has been reduced at a pace that is more rapid than desirable.

The National Tariff Policy (NTP) also allows more time for the States to reduce the cross-subsidy in the State, and MSEDCL believes that the trajectory of cross-subsidy reduction needs to be revisited and stipulated afresh by the Commission, keeping in mind the basic objective that no consumer category is subjected to a tariff shock, to the extent possible.

Hence, MSEDCL has not proposed any significant reduction in cross-subsidy, and in some cases, the cross-subsidy may increase. The movement of the cross-subsidy has been shown in the Table below:

Category	Ratio of Average Realisation to Average Cost of Supply (%)		
	FY04 Tariff Order	Existing levels	Proposed Tariff
Domestic (LD-1)	91%	59%	113%
Non-domestic (LD-2)	144%	129%	163%
General Motive Power	108%	100%	131%
Agriculture	63%	54%	40%
Street Lighting	78%	106%	105%
HTP-I & HTP-II	117%	105%	146%
HTP-III & IV	91%	88%	117%

It should be noted that the FY04 Tariff Order cross-subsidy levels have been recomputed on the basis of the average cost of supply based on ARR approved by the Commission in the Tariff Order for FY 2003-04. Also, the cross-subsidy levels under proposed tariffs are higher, as it includes the impact of recovery of the truing up requirement for FY 2004-05 and FY 2005-06.

## 1.2 Average Cost of Supply vs. Cost to Serve

Though the Commission has in the past indicated that category-wise cost to serve needs to be considered for the purpose of tariff determination, the computation of category-wise cost to serve necessitates the use of several assumptions, which could lead to unreliable results. The NTP also clearly gives the direction that the tariffs are to be determined in relation to the average cost of supply. Hence, MSEDCL has proposed the tariffs in relation to the average cost of supply.

## 1.3 Time of Day (ToD) tariffs

Peak hour power is costlier than off-peak power, and availability of power during peak hours is also scarce. The Commission will appreciate that the load curve has flattened and is also shifting to the hours where power is made available, due to the load shedding being undertaken. In order to maintain the load curve at current levels, it is essential to increase the differential between the off-peak and peak hour tariffs for HT categories, as shown in the Table below:

Sl.	Consumer Category & time slot	Existing ToD tariff (w.r.t. base tariff)	Proposed ToD tariff (w.r.t. base tariff)
<b>1</b>	<b>HTP-I and HTP-II</b>		
	2200 hrs - 0600 hrs	-85	-50
	0600 hrs - 0900 hrs & 1200 - 1800 hrs	0	0
	0900 hrs - 1200 hrs	60	110
	1800 hrs - 2200 hrs	100	180
<b>2</b>	<b>HTP-III and HTP-IV</b>		
	2200 hrs - 0600 hrs	-85	-50
	0600 hrs - 0900 hrs & 1200 - 1800 hrs	0	0
	0900 hrs - 1200 hrs	60	110
	1800 hrs - 2200 hrs	100	180

MSEDCL also proposes to install ToD meters for all consumers with connected load above 10 kW (except domestic consumers), in order to facilitate further flattening of the load curve. MSEDCL proposes to introduce ToD tariffs for these consumers, with lesser differential between peak and off-peak hours, in line with the Commission's philosophy of introducing ToD tariffs with lesser differential and then increasing the differential. The ToD tariffs proposed for such consumers are:

Sl.	Consumer Category & time slot	Proposed ToD tariff (w.r.t. base tariff)
<b>1</b>	<b>Consumers with connected load above 10 kW</b>	
	2200 hrs - 0600 hrs	-50
	0600 hrs - 0900 hrs & 1200 - 1800 hrs	0
	0900 hrs - 1200 hrs	50
	1800 hrs - 2200 hrs	100

#### **1.4 Optional LTMD tariff for LT Industrial Category**

The Commission had introduced optional MD based tariff for LT industrial category in its second Tariff Order. It is now over 4 years since the optional LTMD tariff was introduced. MSEDCL is of the view that the optional element should be removed, and all LT industrial consumers should be shifted to a MD based tariff regime, as contract demand is a better parameter as compared to connected load and is measured accurately also. Hence, MSEDCL proposes that MD based tariff should be made mandatory for LT industrial category.

#### **1.5 Increase in recovery from fixed charges**

Of the total Annual Revenue Requirement (ARR) of MSEDCL, around 42% of the expenses, including fixed costs of power purchase, are fixed in nature. The recovery of fixed costs from fixed charges through the existing tariffs is around 46%. The Commission, in its earlier Tariff Orders, had indicated that the recovery of fixed costs from fixed charges would be gradually increased. Also, in case of The Tata Power Company (TPC), the Commission has determined the recovery of fixed costs from fixed charges at much higher levels, at around 88%. Hence, there is a need to increase the recovery of fixed costs from fixed charges, and MSEDCL proposes to increase the recovery of fixed costs from fixed charges to around 60%.

#### **1.6 Rationalisation of categories and consumption slabs**

The Commission has rationalised the tariff categories and consumption slabs to a great extent in previous Tariff Orders, hence, MSEDCL has not proposed any further rationalisation of the tariff categories and consumption slabs.

#### **1.7 Levy of Voltage Surcharge**

MSEDCL has filed a separate Petition for levy of a voltage surcharge on consumers who are supplied at lower voltage than the prescribed voltage as per MERC

(Standards of Performance) Regulations. The Commission may kindly consider incorporation of this provision in the revised tariff.

## **1.8 Overall philosophy**

Based on the above philosophy, MSEDCL proposes to increase the tariff for most categories (except agricultural category) by the average tariff increase required, equivalent to 28.8%, with some modifications. The industrial tariff is proposed to be increased further, to make up for the gap in revenue due to non-increase of agricultural tariff. The tariffs have been proposed, assuming that the existing FAC of 96 paise/kWh will continue to be levied to the consumers.

### **PROPOSED CATEGORY-WISE TARIFF**

A comparison of the existing and proposed tariffs along with the percentage increase for each consumer category is given in the following Tables.

Category, sub-category & consumption slab	Existing				Proposed		% Tariff Increase
	Fixed Charges (Rs/mth)	Energy Charge (paise/kWh)	Regulatory Liability Charge (paise/kWh)	FAC (paise/kWh)	Fixed Charges (Rs/mth)	Energy Charge (paise/kWh)	
<b>LT CATEGORIES</b>							
<b>Domestic</b>							
0 - 30 units	20	125		96	25	265	20 %
31 - 300 units	40	290		96	60	480	24 %
Above 300 units	40	400		96	60	640	27 %
Fixed charge for 3-phase consumers	100				200		
Addl. Fixed Charge for connected load above 10 kW	Rs. 100 per 10 kW or part thereof above 10 kW				200 per 10 kW or part thereof above 10 kW		
<b>Commercial</b>							
0 - 100 units	100	240	50	96	100	500	28 %
101 - 200 units	100	315	50	96	100	600	
Above 200 units	100	410	50	96	100	720	
Fixed charge for 3-phase consumers	150				250		
Addl. Fixed Charge for connected load above 10 kW	Rs. 150 per 10 kW or part thereof above 10 kW				400 per 10 kW or part thereof above 10 kW		
Optional MD tariff	Rs. 220 / kVA/mth				Rs. 220 / kVA/mth		
<b>LT Industrial (incl. Power rooms)</b>							
0 - 1000 units	Rs. 60 /HP/ month	230	50	96	Rs 100/HP/ month	480	31 %
Above 1000 units	Rs. 60 /HP/ month	250	50	96	Rs 100/HP/ month	510	
Optional MD tariff	Rs. 220/ kVA/mth				Compulsory - Rs. 220 / kVA/mth		
Optional ToD tariff					Compulsory ToD tariff		
22.00-06.00 hrs	0	-75			0	-50	
06.00-09.00 hrs	0	0			0	0	
09.00-12.00 hrs	0	50			0	100	
12.00-18.00 hrs	0	0			0	0	
1800-2200 hrs	0	90			0	150	
<b>LT PWW</b>							
Urban Public Water Works	Rs.60/HP/ month	240		96	Rs.90/HP/ month	400	28 %
Rural Public Water Works				96			
- Grampanchayat	Rs.25/HP/ month	100		96	Rs.50/HP/ month	250	
- Metered tariff (incl. C Class Municipal Councils)	Rs.35/HP/ month	150		96	Rs.60/HP/ month	305	
<b>LT Agriculture</b>							
<b>Flat rate tariff</b>							
- Category 1 circles (<1300 hrs/HP/yr)	Rs. 150/HP/ month			Rs.63/HP/ month	Rs. 213/HP/ month		0 %
- Category 2 circles (>1300 hrs/HP/yr)	Rs. 180/HP/ month			Rs.74/HP/ month	Rs. 255/HP/ month		
Metered tariff (incl. Poultry Farms)	Rs. 15 /HP/ month	110		96	Rs. 15/HP/ month	206	
<b>Street light</b>							
Grampanchayat & C Class Municipals	Rs.30/kW/ month	210		96	Rs50/kW/ month	380	27 %
Municipal Corporations	Rs.30/kW/ month	250		96	Rs50/kW/ month	430	

Sub-category & Consumption Slab	Existing				Proposed		% Tariff Increase
	Demand Charges (Rs/kVA/ mth)	Energy Charge (paise/ kWh)	Regulatory Liability Charge (paise/ kWh)	FAC (paise/ kWh)	Fixed Charges (Rs/ kVA/ mth)	Energy Charge (paise/ kWh)	
<b>HT CATEGORIES</b>							
<b>HTP - I (BMR/PMR)</b>	350	215	50	96	400	495	32%
<b>HTP - II (Others)</b>	330	210	50	96	380	490	33%
<b>Seasonal category</b>	350	300		96	400	545	
<i>ToD tariff</i>							
<b>22.00-06.00 hrs</b>	0	-85			0	-50	
<b>06.00-09.00 hrs</b>	0	0			0	0	
<b>09.00-12.00 hrs</b>	0	60			0	110	
<b>12.00-18.00 hrs</b>	0	0			0	0	
<b>18.00-22.00 hrs</b>	0	100			0	180	
<b>HTP - III (BMR/PMR)</b>	350	215		96	380	400	25%
<b>HTP - IV (Others)</b>	330	210		96	380	390	25%
<i>ToD tariff</i>							
<b>22.00-06.00 hrs</b>	0	-85			0	-50	
<b>06.00-09.00 hrs</b>	0	0			0	0	
<b>09.00-12.00 hrs</b>	0	60			0	110	
<b>12.00-18.00 hrs</b>	0	0			0	0	
<b>18.00-22.00 hrs</b>	0	100			0	180	
<b>HTP - V</b>		335	50	96		610	27%
<b>HTP-VI</b>							
<i>Residential Complex</i>	125	220		96	200	405	31%
<i>Commercial Complex</i>	125	350		96	200	575	
<b>HTP - VII (incl Poultry, Agri high tech)</b>	Rs. 25/HP/ month	130		96	Rs. 75/HP/ month	265	28%
<b>MPECS</b>	200	140		96	200	300	22%
<b>TPC</b>	600	299		96	600	500	0%

MSEDCL has prepared a comparison of retail tariffs across selected comparable States, in order to give an idea of the position of the State, in the context of cross-subsidy reduction and difference in category-wise tariffs. The comparison shows that the cross-subsidy in the State is one of the lowest, as given below:

**Table: Comparison of LT tariffs (Average rate of electricity in December 2005)**  
(paise/kWh)

Sl No.	Name of Utility	Tariff effective from	Domestic 1 KW (100 KWh/ Month)	Domestic 4 KW (400 KWh/ Month)	Commercial 2 KW (300 KWh/Month)	Commercial 10 KW (1500 KWh/ Month)	Agriculture 5 HP (1000 kWh/ month)
1	Andhra Pradesh	1/4/2005	238.5	396.63	599.33	624.67	52
2	Gujarat	25-06-2004	391.84U 276.29R	516.46U, 382.44R	589.61	626.47	57.75
3	Haryana	15-08-3004	333	379.25	429	429	
4	Karnataka (Bangalore Metro Area)	10/10/2005	292.43	418.3	637.88	651.18	
	(Other Areas)		281.93	402.55	630.87	644.18	
5	Madhya Pradesh	15-07-2005	337.3	424.64	538.3	539.59	132.5
6	Maharashtra(Existing )-Tariff Order	1/11/2003	329.16	367.95	476.65	530.13	75
	Maharashtra(Existing )-Actual FAC		376.5	411.1	501	545	180
	Maharashtra(Proposed)		476	519	640	704	180
7	Punjab	1/10/2004	210.00U ,189.00R	320.51U ,288.47R	403.2	403.2	Free
8	Tamil Nadu	16-06-2004	120	216.25	610.75	609.35	Free

Source: Infraline Database

**Table: Comparison of HT tariffs (Average rate of electricity in December 2005)**  
(paise/kWh)

Sl. No.	Name of Utility	Tariff effective from	Small Industry 10KW (1500 KWh/ Month)	Medium Industry 50KW (7500 KWh/ Month)	Large Industry 1000KW 60% L.F. (438000 KWh/Month)	Heavy Industry 10000KW 60% L.F. (4380000 KWh/ Month)	Railway Traction
1	Andhra Pradesh	1/4/2005	415.4	414.33	391.75	431.2	440.03
2	Gujarat	25-06-2004	450.02	465.81	518.63	557.35	549.12 at 132KV
3	Haryana	15-08-2004	438	438	419	419	444.29 at 11KV
4	Karnataka Bangalore Metro (Area)	10/10/2005	418.4	521.47	490.28	501.07	485.88
	(Other Areas)		413.71	512.08	487.46	498.25	485.88
5	Madhya Pradesh	15-07-2005	396.13	483.61	474.48	469	473.33 at 132/220KV
6	Maharashtra -Existing tariff (Infraline Source)	1/12/2003	254.9	254.9	399.55 B 388.57 O	399.55 B 388.57 O	385
	Maharashtra(Existing)-with FAC of 96 paise/kWh		408	408	428 B 425 O	428 B 425 O	481
	Maharashtra -Proposed Tariff		539	539	559 B 551 O	559 B 551 O	610
7	Punjab	1/10/2004	321.3	353.85	353.85	353.85	402 at 132KV
8	Tamil Nada	16-06-2004	458.85	486.57	452.11	462.61	526.47

Source: Infraline Database

The above comparison highlights the difference in tariff between consumer categories as well as the difference in absolute effective tariff in different States. As the above Tables show, the differential in tariff between subsidising and subsidised categories is amongst the lowest in Maharashtra, and the industrial tariffs is amongst the lowest in the country, across comparable States.

## PRAYERS

- The delay in filing this ARR & Tariff Petition may please be condoned and the Hon'ble Commission is requested to accept this Petition and process the Petition expeditiously.
- The category-wise tariffs proposed by MSEDCL may please be approved in accordance with the submissions and rationale given in this Petition.
- Any errors/omissions may please be condoned, and opportunity be given to rectify the same.